A robust defence of macular translocation is delivered at the EURETINA lecture

Claus Eckardt

Gearoid Tuohy in Barcelona

THE 2005 EURETINA Lecture, delivered by Claus Eckardt MD to over 500 retinal specialists in Barcelona, provided a spirited defence of macular translocation surgery as a treatment for subfoveal choroidal neovascularisation.

Dr Eckardt admitted that the request to present a lecture on the subject of macular translocation came somewhat as a surprise given that recent trends would suggest that interest in such retinal surgery had clearly declined over the past number of years.

He commented that even in Germany, where probably most macular translocations in Europe are performed, there are now only a handful of surgeons still actively performing this surgical treatment. A similar situation is thought to pertain across many European countries where, for example in Spain, Dr Eckardt knew of only two surgeons in the entire country that performed the surgical technique.

In recounting how he first came to perform macular translocation surgery on a regular basis Dr Eckardt stated that he was not motivated directly by Dr Robert Machemer from whom he had heard of the technique in the early 1990s. Dr Eckardt recalled that on first learning of Dr Machemer's surgery he thought such a surgical adventure was a crazy idea of an experienced surgeon at the end of his career. However, Dr Eckardt became a stalwart convert when he was introduced to the process by Dr Kirchhof in a case in Germany in the mid 1990s.

Macular translocation is a relatively recently introduced retinal surgical procedure for the treatment of advanced age related macular degeneration. The demand for such a surgical technique derives from the desire to limit damage to the fovea at the centre of the macula, a region rich in cone photoreceptor cells responsible for much of our fine and colour vision.

When subfoveal choroidal neovascularisation occurs, the use of laser photocoagulation as a treatment option runs the risk of damaging the overlying foveal tissue and consequently damaging central vision. The rationale behind macular translocation is to detach the retina from the underlying retinal pigment epithelium (RPE) and move it and fix it in a new position relative to the RPE overlying healthy tissue not damaged by neovascularisation.

The objective of the procedure is to shift the fovea relative to the RPE, repositioning the functional cones and rods in front of functioning RPE cells so that neuronal communication and phototransduction is maintained. Dr Eckardt combines rotational movement of the retina with counter rotation of the eyeball with surgery on eye muscles in an effort to minimise the disorienting effect of the retinal rotation.

Reasons for low uptake of procedure examined

In Frankfurt, macular translocation is now a routine procedure in which over 400 surgeries have been performed, averaging at about one macular translocation a week since the procedure was first initiated in 1997. To date over 100 international visitors have come to Frankfurt from around the world to learn this surgical technique from Dr Eckardt and his team but unfortunately, to Dr Eckardt's disappointment, only about 15 surgeons have progressed in establishing the technique in their home clinics.

Dr Eckardt highlighted a number of possible reasons for the low adoption of this particular technique, which he considered to be a highly valuable treatment option

First, the surgery is technically difficult. It is complex surgery that requires a long learning curve but, according to Dr Eckardt it can be learned and mastered with the right motivation. Dr Eckardt pointed out that despite this technical difficulty there were many other technically challenging surgical procedures which are equal to if not more complicated than macular translocation.

Second, Dr Eckardt considered that perhaps the procedure is unattractive to retinal surgeons because the surgery can take up to three hours. But again, in comparison to other techniques, there are several surgical procedures that can take just as long. Despite this, Dr Eckardt cautioned that the time it takes to perform a procedure should clearly not play a role in the decision making process of treatment if it is a question of saving a patient's sight.

Third, some surgeons believe macular translocation may be a risky procedure. But from his own personal experience and that of professional colleagues Dr Eckardt believes such risks and postoperative complications that may potentially arise can for the most part be successfully treated and as such, on balance, the benefits outweighed the risks.

Fourth, it had been suggested that some surgeons do not attempt macular translocation because they simply do not believe the results. Dr Eckardt conceded that in response to such a criticism all he could do was to insure that all patients' records within his clinic related to macular translocation surgery were open for inspection. He encouraged the sceptical to come and see for themselves.

Finally, Dr Eckardt commented that there are those who say that macular translocation does not represent an approach that is supported by hard scientific evidence, since no controlled comparative studies had ever been carried out. Dr Eckardt pointed out that no such studies had ever been carried out because there is essentially no treatment method against which it can be compared. He said that he could not in good conscience refuse to operate on a patient who he believed required such surgery and therefore would probably not participate in such a control study even if one were to be established.

Retinal photograph of 74-year-old patient with exudative AMD and visual acuity of 0.1 prior to undergoing macular translocation.

Same eye as above , 22 months after macular translocation, visual acuity 1.0.

Medical treatments unlikely to render retinal surgery obsolete

In addressing the potential benefits of new medical treatments such as pegaptanib sodium (Macugen, Eyetech), anecortave acetate (Retaane, Alcon) or rhuFab (Lucentis, Genentech) Dr Eckardt questioned whether or not the introduction of such new medical options would render macular translocation obsolete.

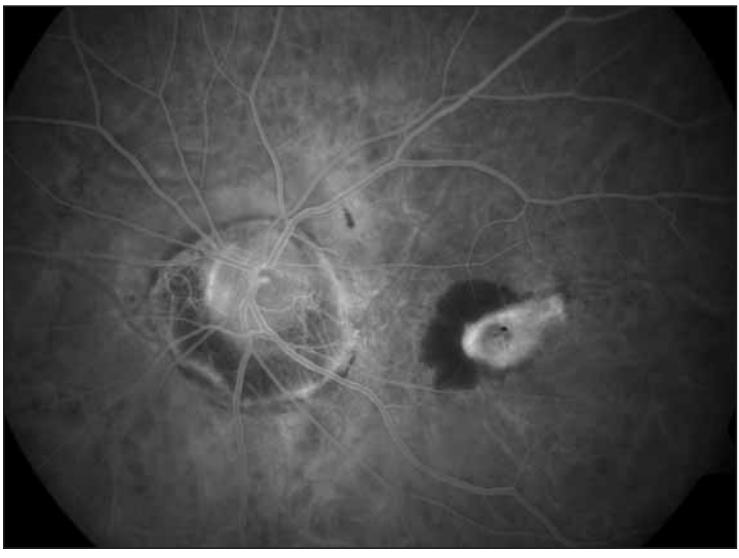
He stressed that optimal macular function in patients with massive subretinal haemorrhage can only be treated with mechanical surgery, and that he found it hard to believe that medical treatment alone to remove the fibrovascular tissue could ever be sufficient or comparable to surgical intervention. Consequently, Dr Eckardt told the audience that he would continue to perform this macular translocation surgery "no matter what new products come on the market'.

Most eyes regain reading vision

Dr Eckardt presented data from all patients operated on in his clinic in 2003, representing 37 patients with a mean age of 76 years ranging from 64 to 80years of age.

The primary objective of the surgery was to restore reading vision with glasses, tested by standard ocular charts. For Dr Eckardt a "regain of reading vision" was defined as the ability to read newspaper print fluidly using normal reading glasses. A regain of reading vision was achieved in 23 out of 37 eyes, which represented a success rate of 62%. An improvement in distance vision of two lines or more was observed in 46% of patients, and there was a worsening of distance vision in 16%.

With regard to complications, PVR occurred in four eyes, i.e., 11%, but three out of these four regained reading vision after additional surgery. Recurrent CMV (choroidal neovascularisation) was another complication. It occurred in 22 %, but again the majority of these cases regained reading vision



Retinal photograph of 63-year-old patient with choroidal neovascularisation after 1x PDT and prior to macular translocation. Preoperative visual acuity 0.1.

Courtesy of Claus Eckardt MD

Same eye as above, 21 months after macular translocation. Visual acuity 0.9.

after argon laser photocoagulation after which there was no further recurrence. Finally the potential complication of diplopia could be further reduced by muscle surgery for counter-rotation.

"For patients with sub-macular choroidal neovascularisation, macular translocation is a treatment that offers a realistic chance to recover reading vision; this is true for both AMD (age related macular degeneration) and especially pathologic myopia. True, the procedure is technically challenging but for a surgeon with the right experience the complication rate is entirely acceptable especially since the complications that do occur can usually be treated effectively."

On the occasion of the 2nd EURETINA Lecture, Prof August Deutman remarked that the board's selection of Dr Claus Eckardt reflected the organisation's recognition of the impact of vitreoretinal surgery on a world stage. The choice of Dr Eckardt for this year's honour marks the acknowledgement of his major accomplishments and contributions to ophthalmology

Dr Eckardt is currently the director of the Eye Clinic in Frankfurt-Höchst where he leads a world renowned surgical speciality group. The EURETINA proceedings cite Dr Eckardt's numerous research activities which have included extensive work in retinal surgery including the experimental developments of new surgical techniques such as surgical keratoprothesis in addition to the development of new instruments for internal limiting membrane removal and extensive experimental testing of new instruments for vitreoretinal surgery.

Dr Eckardt has published his research findings widely and has presented over 250 lectures worldwide in addition to receiving multiple awards and recognitions for his outstanding accomplishments in the field of retinal surgery from, among others, the American Academy of Ophthalmology (AAO) and the American Society of Retinal Specialists (ASRS).

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